REMARKS/ARGUMENTS

Reconsideration and continued examination of the present application are respectfully requested.

Claims 1, 5-14, 16-30, and 32-71 are pending, and claims 37-71 have been withdrawn from consideration. Claims 1, 5-14, 16-30 and 32-36 are in condition for allowance for at least the reasons set forth below.

Claims 2-4, 15, and 31 have been canceled without prejudice or disclaimer of the subject matter claimed therein.

Support for the foregoing amendments to the specification and claims, and changes to the drawings can be found throughout the original specification. Entry and consideration of the amendments are requested.

The application has been restricted to ten allegedly different inventions under 35 U.S.C. § 121. During a telephone call with the Examiner on February 6, 2004, the Applicants' representative, L. Bowersox, provisionally elected, with traverse, to continue prosecution of the invention of Group I, claims 1-36. Applicants affirm the provisional election, with traverse, of claims 1-36. Claims 37-71 have been withdrawn from further consideration by the Examiner as being drawn to a non-elected invention.

Applicants respectfully submit that Group II (claims 37 and 38) and Group VI (claims 52-55) should be combined into one invention. They have been classified in the same class and subclass by the Examiner. Combining the groups would reduce the amount of time required for searching.

Groups VIII (claims 60 and 61) and X (claims 66-71) should also be combined together as one invention as they are classified in the same class and subclass by the Examiner. Such a combination would decrease the amount of time required for searching each group independently.

The Examiner has requested that Applicant elect a single species for prosecution on the merits from claims 63, 64, and 65. Those claims, and claim 62 have been withdrawn from further consideration by the Examiner, and thus election of a single disclosed species is rendered moot at this time.

In paragraph 10 of the Office Action the Examiner has set forth the scope of the phrase "bubble free electrode." Applicants respectfully submit that the scope of the phrase "bubble-free electrodes" is set forth in the specification in full, clear, concise, and exact terms as to enable any person skilled in the art to make and use any invention requiring a "bubble-free electrode." Further definition of the term is not necessary to the understanding of the claimed invention.

The Examiner has objected to drawing Fig. 8b because it includes reference signs **810** and **812** not mentioned in the description. The specification has been amended above at page 33, line 22, and page 34, lines 1 and 3 to address the objection to Fig. 8b. Withdrawal of the objection to Fig. 8b is requested.

Fig. 9 has also been objected to by the Examiner for including duplicate reference signs **810** and **812** in the figure. Applicants have addressed this objection by a proposed drawing correction to change reference characters **810**, **812** in Fig. 9 to **850**, **852**, as described in the amended specification at page 36, line 2. Withdrawal of this objection to the drawings is respectfully requested.

Fig. 19 has been objected to for including a reference sign **110** which is not mentioned in the specification. Applicants have addressed this objection by the above revision to the specification at page 48, line 7 to indicate that reference sign **110** is directed to an insulating border made of epoxy. No new matter has been added by this amendment to the specification. Withdrawal of the objection to Fig. 19 is requested.

The drawings have been objected to for failing to comply with 37 C.F.R. § 1.84(p)(4) because reference characters **810** and **812** have been used to designate two different features in the figures. Applicants have addressed this objection by redesignating **810** and **812** in Fig. 9 with new reference numbers **850** and **852**, respectively. Withdrawal of this objection to the drawings is respectfully requested.

The drawings have been objected to for failing to comply with 37 C.F.R. § 1.84(p)(5) because they do not include reference signs **802** and **108'**. Applicants have addressed the objection to reference sign **802** through the above amendments to the specification at pages 33 and 34. The objection to reference sign **108'** has been addressed by the correction to Fig. 19. Withdrawal of these objections is respectfully requested.

The Examiner suggests in paragraph 14 that reference character **802** at page 33, line 22 and 34, line 1 of the specification should be changed to **812**. Applicants agree with this suggestion and have amended the specification above.

Examiner further suggests that uncharged components of Fig. 9 (*see* page 34, line 3) should be identified by the reference character **810**. Applicants believe Examiner was referring to Fig. 8b,

and agree that the reference to the uncharged components of Fig. 8b should be identified by the reference character **810**. The specification has been amended above to address this issue.

The disclosure has been objected to because of informalities identified by the Examiner in paragraph 15 of the Office Action. Applicants have addressed each of those formalities in the above amendments to the specification. Withdrawal of the objection to the disclosure is requested.

Claims 15, 19, and 31 stand objected to because of informalities. Those informalities are addressed by the above claim amendments. Withdrawal of the rejections is respectfully requested.

Claims 15 and 31 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to provide enablement for a device having electrodes disposed in anodic and cathodic reservoirs, wherein the electrodes are connected to an alternating current power source. The Examiner alleges that the specification does not enable a person skilled in the art to make or use the invention commensurate in scope with claims 15 and 31. Applicants submit that this rejection has been rendered moot by the cancellation without prejudice or disclaimer of claims 15 and 31.

Claims 1-36 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner asserts that claim 1 is indefinite because the limitation "a power source having a positive terminal that is normally in electrical contact with said first electrode" is indefinite because the structure of the device is allegedly not positively recited. In light of the above claim amendments, Applicants respectfully request withdrawal of this rejection.

Claims 2-4, 18, and 32 are allegedly indefinite because they fail to positively recite structural limitations. The Examiner asserts that the claims allegedly recite process limitations that

do not further limit the structure of the claimed device. For the reasons set forth herein, Applicants respectfully request reconsideration and withdrawal of these rejections.

Claims 12 and 28 stand rejected because the limitation "at least one of said first and second electrodes comprises a nickel-cadmium electrode system" is allegedly indefinite because the resulting structure of the device is unclear. Applicants respectfully request withdrawal of this rejection in light of the above claim amendments.

Claim 31 recites "at least one of said first and second electrodes ... is connected to an alternating current power supply," which the Examiner finds to be indefinite because it is allegedly missing essential structural relationship between the power source recited in claim 20 and the alternating current power supply recited in claim 31. Applicants submit that this rejection has been rendered moot by the cancellation of claim 31.

Claims 1-7, 16-23, and 32-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Bjornson et al. (U.S. Patent No. 6,103,199). Applicants respectfully traverse this rejection and request withdrawal thereof for at least the following reasons.

In discussing Bjornson et al. '199, the Office Action contends that each reservoir has an electrode **130** and **134** made of a material such as palladium, which absorbs hydrogen and is capable of operating in a bubble-free manner. Independent claims 1 and 20 of the present application are directed to novel combinations of features including a first bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and the bubble-free electrode being disposed within one of the anodic reservoir and the cathodic reservoir. In the case of independent claim 20, the electrode is a bubble-free hydrogen absorbing electrode having been

precharged as a cathode to have hydrogen absorbed therein. As disclosed in the background section of this application, it is well known that palladium has been used as an electrode material in electrophoretic devices, and that palladium absorbs hydrogen. As described in the specification at page 9, however, according to embodiments of the present invention, palladium anodes are provided that have been precharged as a cathode to have hydrogen absorbed therein, which is useful in preventing the formation of oxygen bubbles at the anode during operation of a cell including the anode. As further explained in the specification at page 10, although the palladium metal material and other electrode materials used according to embodiments of the invention may not store oxygen gas, when a cell including the material is operated under anodic operating conditions fully pre-charged, the formation of oxygen gas bubbles are prevented or reduced. Instead of generating oxygen gas, the pre-charged palladium or hydrogen-absorbing electrode of the present invention reacts with the reservoir of hydrogen stored in the pre-charged electrode material. As a result of pre-charging, oxygen generated reacts with the stored hydrogen and the stored hydrogen is oxidized as opposed to the oxygen generating oxygen gas. These portions of the specification and numerous other portions provide an explanation of what is meant by a bubble-free electrode having been precharged as a cathode to have hydrogen absorbed therein, and a bubble-free hydrogen absorbing electrode having been precharged as a cathode to have hydrogen absorbed therein, as claimed in independent claims 1 and 20. Applicants submit that the mere disclosure of the use of palladium on an electrode, as in the Bjornson et al. '199 reference, provides absolutely no teaching or suggestion of the novel combinations of features recited in claims 1 and 20, including a first bubble-free electrode that has been precharged as a cathode to have hydrogen absorbed therein, and disposed

within one of the anodic reservoir and the cathodic reservoir. Accordingly, Bjornson et al. '199 clearly does not anticipate the presently claimed invention, and therefore withdrawal of the rejection based on Bjornson et al. is requested.

Claims 1-6, 13, 14, 16, 18, 20-23, 28, 30, 32, 34, and 35 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Cabilly et al. (U.S. Patent No. 6,379,516). Applicants traverse this rejection and request withdrawal of this rejection for at least the following reasons.

The Cabilly et al. patent does not disclose, as asserted by the Examiner, "bubble free electrodes." Cabilly et al. describe cathodes made from "palladium or other suitable conductive material which are capable of absorbing hydrogen at the cathode side. On the other hand, Cabilly et al. recognizes that simply using palladium as the cathode will not result in a "bubble free electrode." Cabilly et al. describes an apparatus that accounts for production of gas at the electrode and describes "release of gas bubbles produced at the vicinity of cathode **21** are directed towards empty volume **30**," *see* col. 11, lines 34-35. The electrodes described in Cabilly et al. are clearly not "bubble free." Cabilly et al. do not describe the presently claimed invention, withdrawal of the rejection based on Cabilly et al. is respectfully requested.

Claims 1-7, 16-23, and 32-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Ramsey (U.S. Patent No. 6,001,229) in view of WO 00/74850. Applicants respectfully traverse this rejection and request withdrawal of this rejection for at least the following reasons.

According to the Office Action, Ramsey allegedly discloses a microfluidic device comprising an electrochemical cell having anodic and cathodic reservoirs with electrodes disposed therein. The Ramsey device further comprises a power source **37**, which operates at between

60 V/cm and 1,500 V/cm. According to the Office Action, this voltage is within the range cited in claim 19 of the present application, that is, greater than 5 V to about 200 V.

The Office Action acknowledges that the device of Ramsey differs from the presently claimed invention because Ramsey does not disclose a bubble free electrode. The secondary reference, WO '850 is utilized to allegedly overcome the above-stated deficiency of Ramsey. WO '850 discloses that the way to prevent bubble generation is to limit the maximum possible supplied voltage to the electrodes. *See* the fourth paragraph of page 7, the last two sentences of page 8, the fourth paragraph of page 19, and the fourth paragraph of page 26. Clearly, WO '850 teaches that use of a voltage less than 5 V is needed to prevent formation of bubbles. For instance, all of the examples of WO '850 utilize voltages of less than about 5 V. The addition of WO '850 does not overcome the above stated deficiency of Ramsey.

Furthermore, the suggested combination of Ramsey in view of WO '850 would render the prior art of either reference unsatisfactory for its intended purpose. Ramsey is directed towards a device operating at voltages greater than 60 V/cm, and up to 1,500 V/cm, while the WO '850 invention is directed toward a device using voltages of less than 5 V. Where a proposed modification would render the prior art unsatisfactory for its intended purpose, there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Withdrawal of the rejection based on the combination of Ramsey in view of WO '850 is requested.

Claims 8-12 and 24-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cabilly et al. as applied above, and further in view of Yano et al. (U.S. Patent No. 6,077,625). Applicants respectfully request withdrawal of this rejection for at least the following reasons.

As set forth above with regard to the 35 U.S.C. § 102(e) rejection based on Cabilly et al., Cabilly et al. fails to disclose the presently claimed invention, and the addition of Yano et al. does not overcome the above-stated deficiencies of the Cabilly et al. disclosure. Withdrawal of the rejections based on Cabilly et al. in view of Yano et al. is therefore requested.

CONCLUSION

Applicants respectfully submit that claims 1, 5-14, 16-30, and 32-36 are in condition for allowance. Applicants respectfully request favorable reconsideration of the present application and a timely allowance of the pending claims.

Should the Examiner deem that any further action by Applicants or Applicants' undersigned representative is desirable and/or necessary, the Examiner is invited to telephone the undersigned at the number set forth below.

If there are any other fees due in connection with the filing of this response, please charge the fees to deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,

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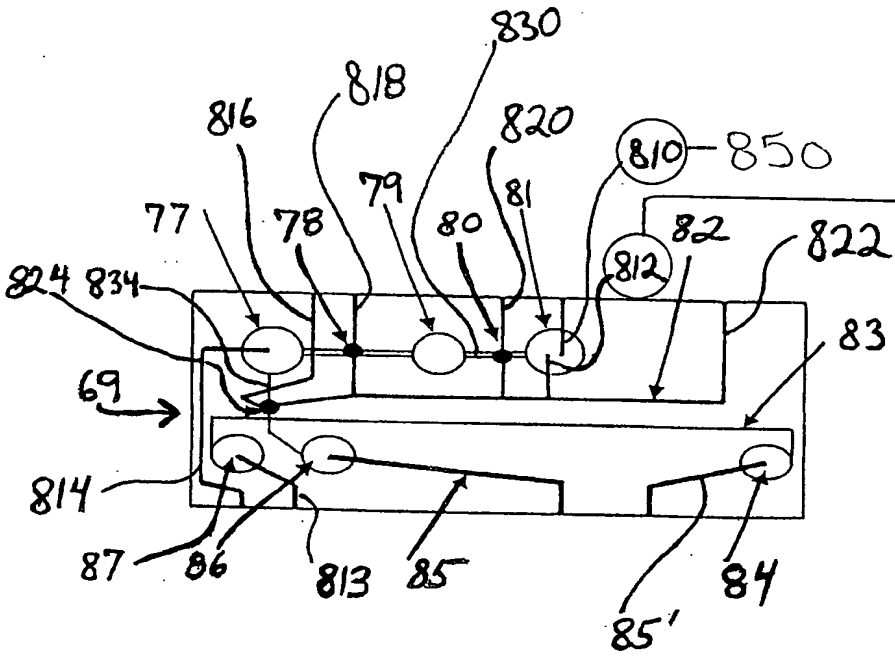
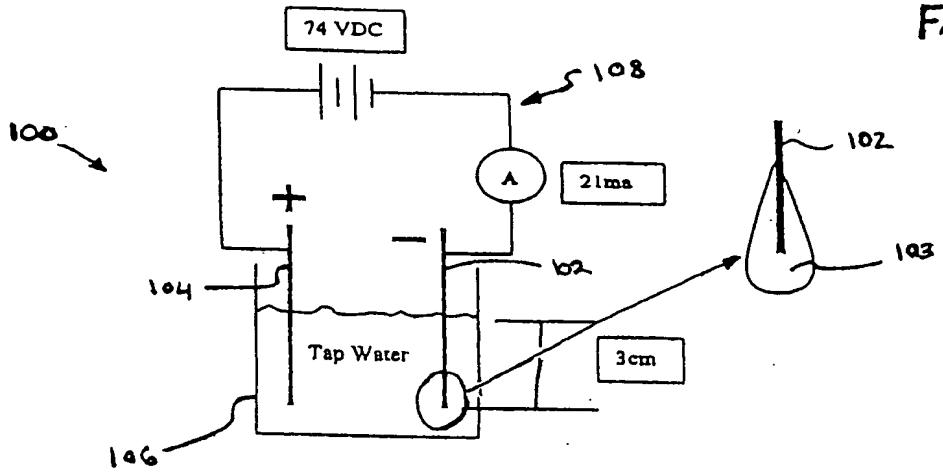


Fig. 9

Fig. 17



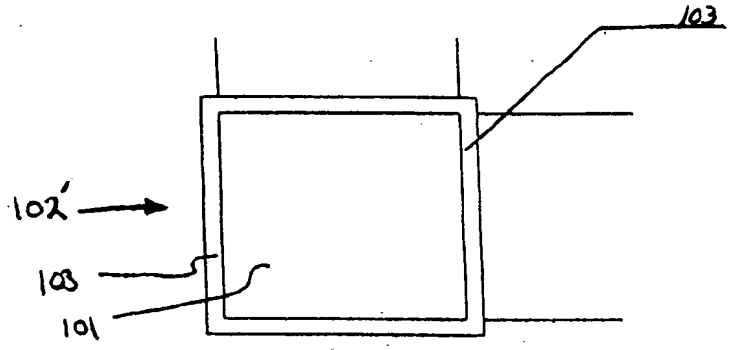


Fig. 18

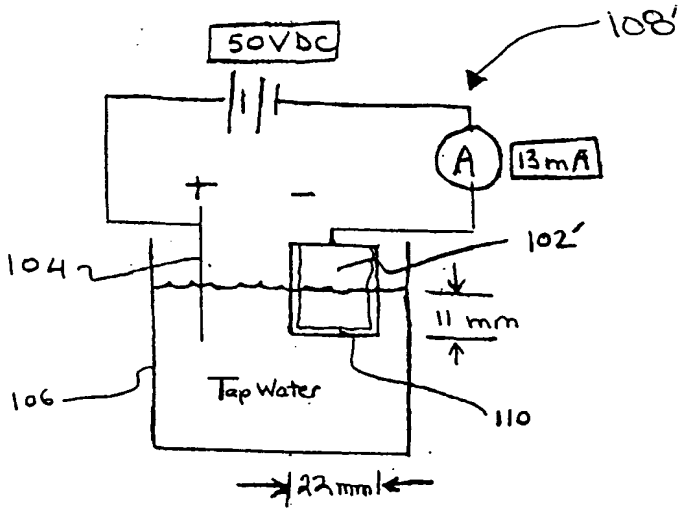


Fig. 19